

**REMARKS****Status of the Claims**

Claims 1-11 were previously canceled and new claims 12-20 were presented for examination. The Examiner refused to enter the proposed amendment on the ground that they are not readable on the examined invention.

In this amendment, claims 6-9 and 11 are canceled, claim 10 is amended, and new claims 12-16 are added. Support for the amendment and the new claims may be found throughout the specification as filed, for example, at paragraphs [0014] and [0033]-[0035]. Thus, no new matter has been added. Upon entry of the amendment, claims 10 and 12-16 will be pending and subject to further examination. Entry of the amendment and reconsideration on the merits in view of the following comments is respectfully requested.

With respect to all amendments, Applicants have not dedicated or abandoned any unclaimed subject matter and moreover have not acquiesced to any rejections and/or objections made by the Patent Office. Applicants expressly reserve the right to pursue prosecution of any presently excluded subject matter or claim embodiments in one or more future continuation and/or divisional application(s).

**Objection to the Specification**

The specification was objected to because page 5, paragraph [0031] contained an embedded hyperlink directed to an Internet address. In response, Applicants have amended paragraph [0031] on page 5 to delete the embedded hyperlink. Accordingly, this objection may now be withdrawn.

**Rejection under 35 U.S.C. § 112, Second Paragraph**

Claims 10-11 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. Specifically, it is alleged that the meaning of the term “medicament treatment” in claim 11 is unclear, and no specific steps are recited in use claims 10 and 11.

Applicants have canceled claim 11, thereby rendering all comments directed to this claim moot. Moreover, claim 10 has been amended to recite a specific method step. Accordingly, it is respectfully submitted that this basis for rejection may properly be withdrawn.

**Rejection under 35 U.S.C. § 112, First Paragraph, Enablement**

Claims 6-11 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. The claims allegedly contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As noted above, Applicants have canceled claims 6-9 and 11, thereby rendering all comments directed to these claim moot. Claim 10 as amended recites “a method for preventing and treating plant diseases caused by a bacterial pathogen, which method comprises functional inactivation of a gene identified as *XC1950* encoding a phosphoenolpyruvate synthase protein in said bacterial pathogen.” As noted above, support for this amendment may be found at least in paragraphs [0014] and [0033]-[0035] of the specification as filed. For example, paragraph [0014] states that “one can control the toxicity of bacteria if he/she can control the activity of phosphoenolpyruvate synthase gene or its product.” Paragraph [0014] further states that “phosphoenolpyruvate synthase gene and its product can be used as targets in medicament treatment and plant disease control.” Consistent with these statements, Examples 4 and 5 (paragraphs [0034] and [0035]) show that *Xanthomonas campestris* mutants having *XC1950* deletions could not grow on solid growth medium containing pyruvate as the sole carbon source and demonstrated significantly lower pathogenicity in Chinese radish plants compared to wild-type controls.

Applicants respectfully traverse this rejection with respect to claim 10 as amended for the reasons set forth below.

“The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.” *United States v. Teletronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988). The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue. *In re Angstadt*, 537 F.2d 498, 504, 190 USPQ 214, 219 (CCPA 1976). MPEP 2164.01. Experimentation is not considered undue, even if extensive, if it is routine or if the specification provides reasonable guidance regarding the direction of experimentation – time and difficulty are not determinative of undue experimentation if the experimentation is routine. *See PPG Indus., Inc. v. Guardian Indus. Corp.*, 75 F.3d 1558, 1564, 37 USPQ2d 1618, 1623 (Fed. Cir. 1996); *In re Wands*, 858 F.2d at 736-40, 8 USPQ2d at 1403-7; *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987). The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. *In re Certain Limited-Charge Cell Culture Microcarriers*, 221 USPQ 1165, 1174 (Int’l Trade Comm’n 1983), *aff’d sub nom.*, *Massachusetts Institute of Technology v. A.B. Fortia*, 774 F.2d 1104, 227 USPQ 428 (Fed. Cir. 1985). “As long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112, is satisfied.” *In re Fisher*, 427 F.2d 833, 839, 166 U.S.P.Q. 18, 24 (CCPA 1970). MPEP § 2164.01(b) (emphasis added).

In this case, the specification clearly discloses that functional inactivation of the *XC1950* gene and its product by gene deletion leads to decreased pathogenicity in plants due to the inability of the pathogen to utilize pyruvate as an energy source (Examples 3-5). The specification unambiguously states that one can protect plants from disease by controlling the activity of phosphoenolpyruvate synthase gene or its product. This disclosure makes it apparent to a person skilled in the art that one can treat and prevent plant disease by targeting either the *XC1950* gene itself or by inhibiting its phosphoenolpyruvate synthase product. As noted above, the enablement requirement does not rule out further experimentation, as long as such experimentation is routine in nature. Given the teachings of the present application and the knowledge available in the art, a person skilled in the art could easily express the phosphoenolpyruvate synthase encoded by the

*XC1950* gene and identify its inhibitors by routine screening. For several examples of functional phosphoenolpyruvate synthase assays, *see* K.M. Berman & M. Cohn, *J. Biol. Chem.* 1970, 245(20): 5309-5318 (attached as **Exhibit A**). Alternatively, a person skilled in the art could target the *XC1950* gene expression at the level of transcription or translation. Since the present inventors have already validated the *XC1950* gene and its product as useful targets for plant protection, it would not require more than routine experimentation to identify specific inhibitors of the functional *XC1950* gene expression.

Thus, it is respectfully submitted that there is a sufficient reasonable correlation between the extent of the present disclosure and the scope of the claims, as required by the rule of *In re Fisher*. Accordingly, it is respectfully submitted that claim 10 as amended herein is adequately enabled by the specification, and therefore this basis for rejection may properly be withdrawn.

#### **Rejections under 35 U.S.C. § 102**

Claims 6-9 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by da Silva *et al.* (Accession No. AB012323, hereinafter “da Silva”), which allegedly teaches the complete sequence of the SEQ ID NO: 1 and identifies the open reading frame. Additionally, claims 6 and 10-11 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Cao *et al.* (U.S. Patent Application Pub. No. 2003/0233675, hereinafter “Cao”), which allegedly teaches an isolated nucleotide sequence having > 88% sequence identity to SEQ ID NO: 1 and a method of transforming a plant with said nucleotide sequence to increase disease resistance in the plant.

As noted above, Applicants have canceled claims 6-9 and 11, thereby rendering all comments directed to these claims moot. Claim 10 has been amended to recite “a method for preventing and treating plant diseases caused by a bacterial pathogen, which method comprises functional inactivation of a gene identified as *XC1950* encoding a phosphoenolpyruvate synthase protein in said bacterial pathogen.” Applicants respectfully traverse the rejection of claim 10 as amended under 35 U.S.C. § 102(e) as allegedly being anticipated by Cao for the reasons set forth below.

The legal standard for anticipation under 35 U.S.C. § 102 is one of strict identity. *Trintec Industries, Inc. v. Top-U.S.A. Corp.*, 63 USPQ2d 1597 (Fed. Cir. 2002). To anticipate a claim, a single prior source must contain each and every limitation of the claimed invention. *In re Paulson*, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994) (citing *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990)). “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP § 2131. Moreover, the identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP § 2131.

Cao teaches recombinant DNA constructs, wherein said constructs comprise a promoter functional in a plant cell, positioned to provide for expression of a polynucleotide encoding a polypeptide from a microbial source. (Cao at paragraph **[0014]**). Microbial polypeptides of interest for expression from such constructs were selected for their ability to impart improved properties to transformed plants as the result of modification of anyone or more of a variety of plant phenotypes. (*Id.*) The Examiner’s search revealed 88.2% identity between SEQ ID NO: 39029 of Cao and SEQ ID NO: 1 of the present invention. The Examiner asserted that the present invention is anticipated by Cao. However, Cao only teaches that a DNA construct comprising a nucleotide of SEQ ID NO: 39029 must be transformed into plant cells in order to confer its benefit on the cells. In contrast, claim 10 as amended requires functional inactivation of the *XC1950* gene in the bacterial pathogen in order to protect plant cells from disease. As one can plainly see, the principle of operation disclosed in Cao is entirely different from the one presently claimed.

Since Cao does not teach functional inactivation of the *XC1950* gene, it does not teach or suggest each and every limitation of claim 10 as amended herein. Accordingly, it is respectfully submitted that the strict identity test for anticipation under 35 U.S.C. § 102 is not met, and therefore this basis for rejection may properly be withdrawn.

**CONCLUSION**

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing **docket No. 606932000100**. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

Electronic signature: /Yan Leychkis/  
Yan Leychkis

Registration No.: 60,440  
MORRISON & FOERSTER LLP  
12531 High Bluff Drive, Suite 100  
San Diego, California 92130-2040  
Phone: (858) 314-7702